Volunteer Lake Assessment Program Individual Lake Reports

MILLEN POND, WASHINGTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	832	**Max. Depth (m):**	12.6	**Flushing Rate (yr^{-1}):**	0.7
Surface Area (Ac.):	156	**Mean Depth (m):**	5	**P Retention Coef:**	0.71
Shore Length (m):	5,000	**Volume (m^3):**	3,185,500	**Elevation (ft):**	1582

TROPHIC CLASSIFICATION

Year	Trophic class
1984	OLIGOTROPHIC
1997	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

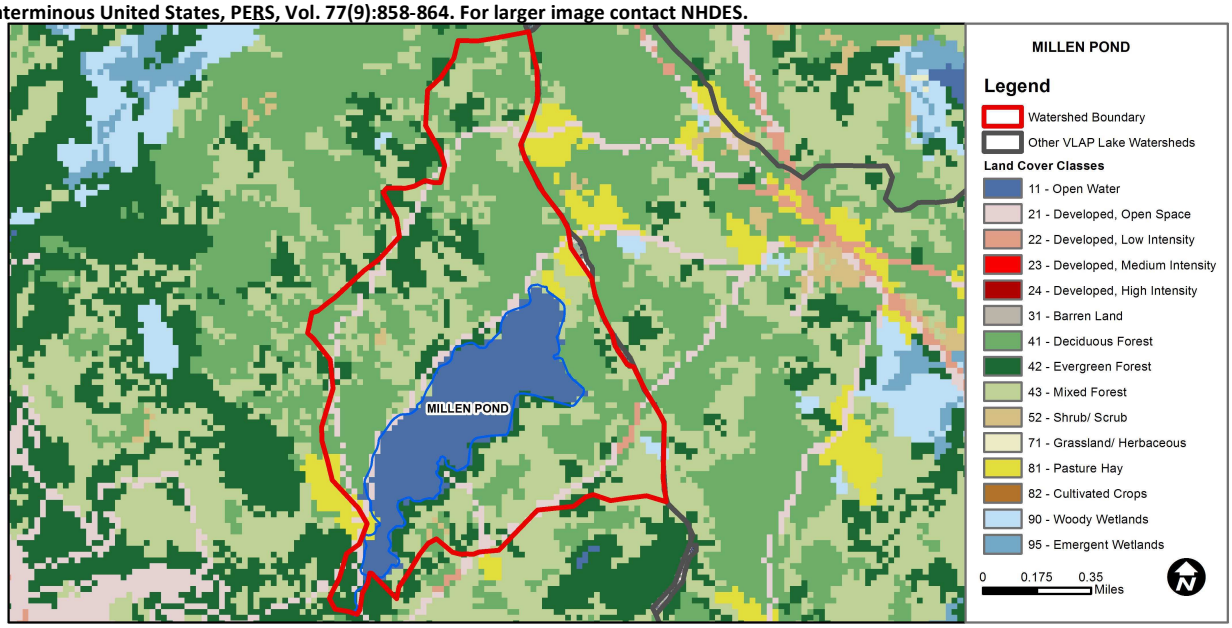
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

MILLEN POND - TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	19.5	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	5.73	Deciduous Forest	32.21	Pasture Hay	1.71
Developed-Low Intensity	0.33	Evergreen Forest	12	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	27.86	Woody Wetlands	0.27
Developed-High Intensity	0	Shrub-Scrub	0.3	Emergent Wetlands	0

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
MILLEN POND, WASHINGTON, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were low and less than the NH lake median. Historical trend analysis indicates a relatively stable chlorophyll level since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride levels were low.
- **E. COLI:** E. coli levels were well below state standards for public beaches and surface waters.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low and below the NH lake median. Historical trend analysis indicates a significantly decreasing (improving) epilimnetic (upper water layer) phosphorus level. Outlet phosphorus levels were elevated in September and the turbidity was also elevated indicating sediment contamination.
- **TRANSPARENCY:** Transparency was slightly great than 2011 and greater than the NH lake median. Historical trend analysis indicates the transparency tends to fluctuate from year to year.
- **TURBIDITY:** Turbidity was greatly elevated in the Outlet sample in September due to dry conditions.
- **PH:** pH levels lower than desirable due to natural causes, and potentially critical to aquatic life.
- **RECOMMENDED ACTIONS:** Do not sample tributaries if insufficient flow or water exists to collect a sample free of sediment. The improving epilimnetic phosphorus trend is a good sign and we hope to see this continue.

Dissolved Oxygen & Temperature Profile

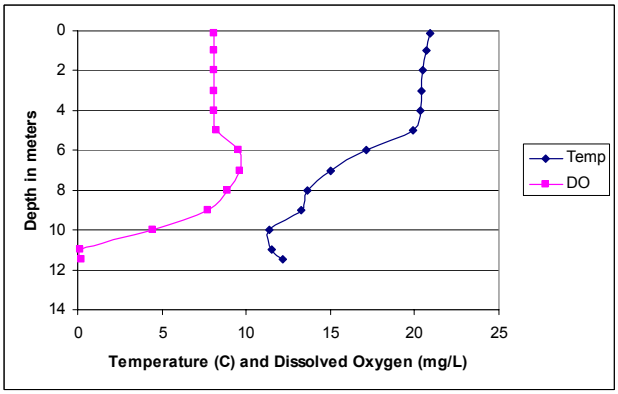


Table 1. 2012 Average Water Quality Data for MILLEN POND

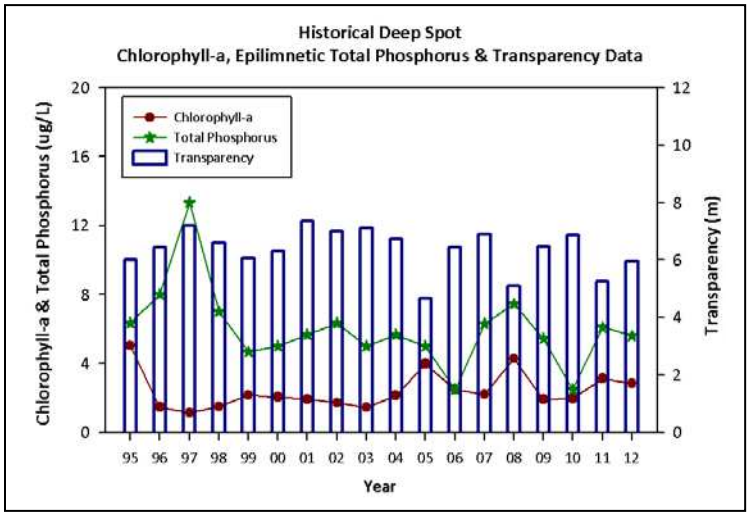
Station Name	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Deep Epilimnion	2.00	2.85	4	25.5		6	5.96	7.23	0.71	6.41
Deep Metalimnion				24.9		6			0.89	6.36
Deep Hypolimnion				31.0		10			1.22	5.90
Inlet			3	29.5					0.60	6.48
Loon Island					10					
Outlet In Stream				47.2		38			18.2	6.31

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Phosphorus (epilimnion)	Improving	Data significantly decreasing.



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